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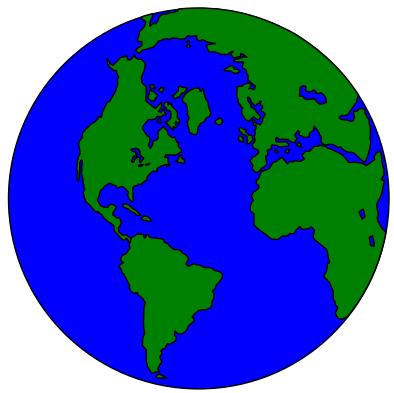
Comprehensive Pediatric Asthma Program

University Health Systems of Eastern Carolina

May 1, 2007

“World Asthma Day”



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PROBLEM IDENTIFICATION

Pediatric Asthma

- FY 1994/1995: #2 reason for admission to children's hospital
- FY 1994/1995: #1 reason for Emergency Department utilization

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COALITION BUILDING

- Steering Committee to include all key players in community - PCPs, School System, Specialists, American Lung Association, etc.
- Define issue
- Discuss and implement strategies - 12 week Pilot Program at local school, patient/family education, medications maximized per NIH guidelines with significant improvement in peak flow readings

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PILOT PROGRAM

- Buy-in from coalition MDs and school system
- 12 weeks at local elementary school
- Peak flow documented daily
- Patient/Parent education
- Meds maximized per NIH guidelines at 6 weeks
- Significant improvement in peak flow readings

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INITIAL FUNDING

- Grant funding pursued after pilot (3 year funding by The Duke Endowment)
- In-kind contributions from University Health Systems
- Pharmaceutical companies

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PEDIATRIC ASTHMA STAFF

- Staff includes multidisciplinary team of asthma educators including Respiratory Therapist, Social Worker, and Registered Nurse

- Goals are to decrease the need for emergency care and hospitalizations, decrease school absences, and increase Quality of Life

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CDC Evaluation of Asthma Control Program in Pitt County, North Carolina

FINDINGS

- Asthmatic children are having less contact with the hospital services
- The intervention of education and case management is causing a decrease in the number and cost of inpatient and outpatient visits for Pitt County residents
- The cost-effectiveness of the program seems to be improving
- The program savings are now more than covering the expenses of administering the program

Evaluation conducted by:
Adrienne Welburn, Prevention Effectiveness Intern
and Scott Grosse, Program Analyst **July, 1999**

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

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CURRENT SERVICES

- Case Management Services
- Education
- Consultation
- Regional expansion to five sites:
  - Bertie Memorial Hospital
  - Chowan Hospital
  - Duplin Memorial Hospital
  - Heritage Hospital
  - Onslow Memorial Hospital

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METHODS OF PATIENT REFERRAL

Proactive

- Physician
- School Health Specialist

Reactive

- Inpatient Admissions
- ED Utilization (>once in 6 months)

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BARRIERS

Barriers frequently identified include:

- Misconceptions about asthma
- Financial
- Transportation
- Comprehension of management plan
- Communication

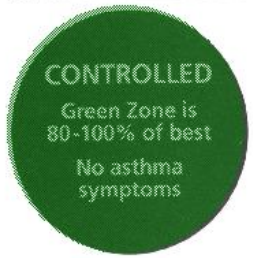
ASTHMA ACTION PLAN

Asthma Action Plan

Target Peak Flow: _____ lprn based on ☐ personal best or ☐ predicted best Height (inches): _____

Category of Severity: ☐ Mild Intermittent ☐ Mild Persistent ☐ Moderate Persistent ☐ Severe Persistent

Peak Flow > _____



Green Zone Action Steps

1. Avoid triggers that cause your asthma to be worse (smoke, cold weather, allergens, infections, etc.).
2. Monitor peak flow and check for warning signs at least two times a day and *always* before and after using rescue medicine. Record these numbers as instructed.
3. Take the daily controller medicines listed below:

   _____ puffs of _____ _____ times a day, *everyday*.

   _____ puffs of _____ _____ times a day, *everyday*.

   _____

   These medicines are used to control and prevent asthma symptoms. Do not stop taking these without talking to your doctor.
4. ☐ (check if applicable) _____ puffs of _____ 10-15 minutes before exercise.

Peak Flow _____ to _____

Yellow Zone Action Steps

1. Take _____ puffs of _____ every _____ hours until back to Green Zone. **This is your rescue medicine.** Continue this for 24-48 hours. If you continue to require rescue medicine after 24-48 hours or if you experience asthma symptoms over 2 times a week, call your doctor. Your controller medicine may need to be changed.
2. *Always repeat* your peak flow and/or check for improvement in warning signs 10-15 minutes after using rescue medicine.
3. Continue taking your *daily controller* medicine as follows:

   _____ puffs of _____ _____ times a day for _____ days; then continue as written in the above Green Zone Plan.
4. _____

   _____

Always use a spacer when taking metered dose inhalers.

Peak Flow < _____

Red Zone Action Steps

This is an emergency and could be life threatening.

1. Take _____ puffs (or ☐ nebulizer vial) of _____ now and repeat your peak flow and/or check for improvement in warning signs in 10 minutes.
2. If you are not back in the Yellow or Green Zone, repeat above step every _____ for a total of _____ treatments.
3. **Always** call your doctor at _____ to notify him or her of your Red Zone event.

Seek medical care immediately if you remain in the Red Zone, if you continue to have difficulty breathing, if you have trouble walking or talking due to shortness of breath or if your lips or fingernails are blue.

Patient's name _____ DOB _____

School _____ Date _____

Doctor's name _____ Pharmacy _____

white – patient yellow – doctor pink – school gold – pharmacy or asthma program

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Pediatric Asthma Program

A community service of University Health Systems of Eastern Carolina, which includes Pitt County Memorial Hospital, community hospitals, physician practices, home health and other independently operated health services. University Health Systems is affiliated with the Brody School of Medicine at East Carolina University.

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UHS CASE MANAGEMENT MODEL*

a process for providing individualized case management within a unique disease population

Referral for Services

Initial Interview / Assessment

Determination of Resource Intensity / Needs

COMPLEX	INTERMEDIATE	NON-ACUTE
Enroll in Program * See Flow Chart	**Develop Action Plan** Re-evaluate at 3,6, and 9 months Close case at 1 year Enroll in program	**Minimal Services** Initial Education Referral to other resources

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CASE MANAGEMENT

Components Flow Chart

I. COMPREHENSIVE ASSESSMENT

II. DEVELOP INDIVIDUALIZED CARE PLAN

Health Maintenance Referrals:

- **Primary Care Physicians**
- **Specialists:**
  - **Dentist**
  - **Opthalmologist**
  - **Allergist**
  - **Gynecologist**

System Referrals:

- **Department of Social Services**
- **Child/Adult Protective Services**
- **Housing Authority**
- **Community Resources**

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III. CARE COORDINATION

IV. REASSESSMENT / MONITORING

Formal Reassessment: completed annually

Monitoring: frequency dependent upon complexity of the client

V. EVALUATION / OUTCOMES

Satisfaction Surveys

Client

Physicians

Quality of Life Questionnaire

Utilization Analysis

Cost-Benefit

Cost-Effectiveness

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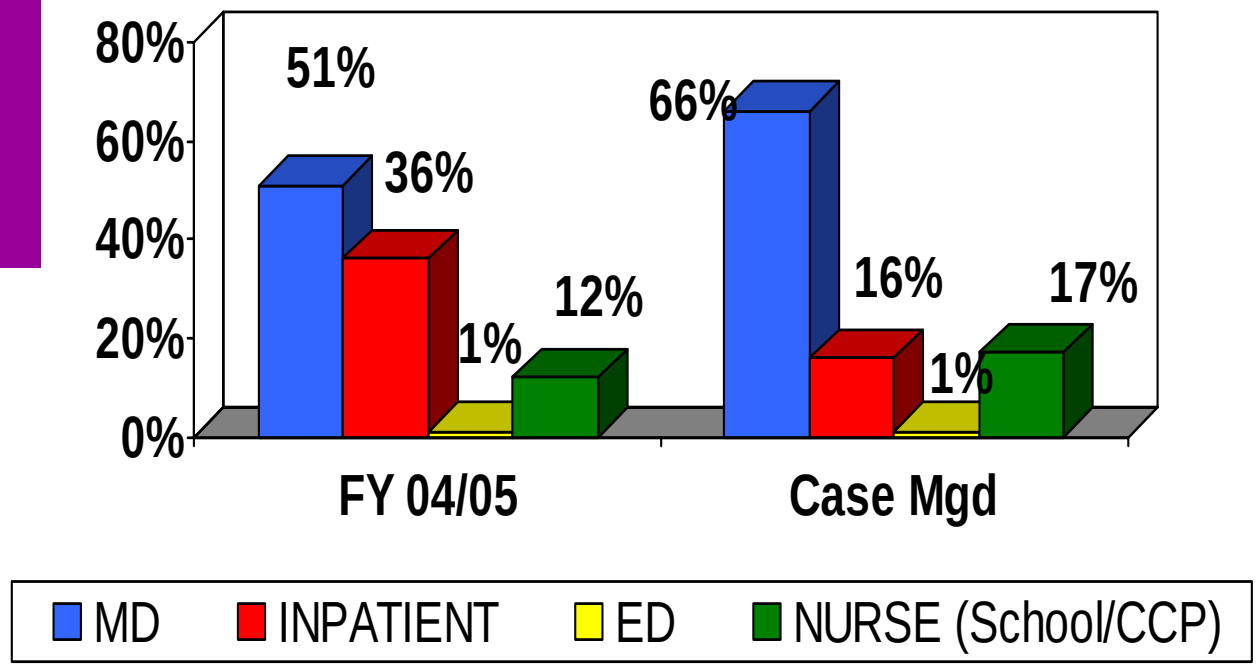
DATABASE REFERRAL SOURCES

FY 04/05: N=237 Case Mgd.: n=107



Total referrals received to date: 2,543

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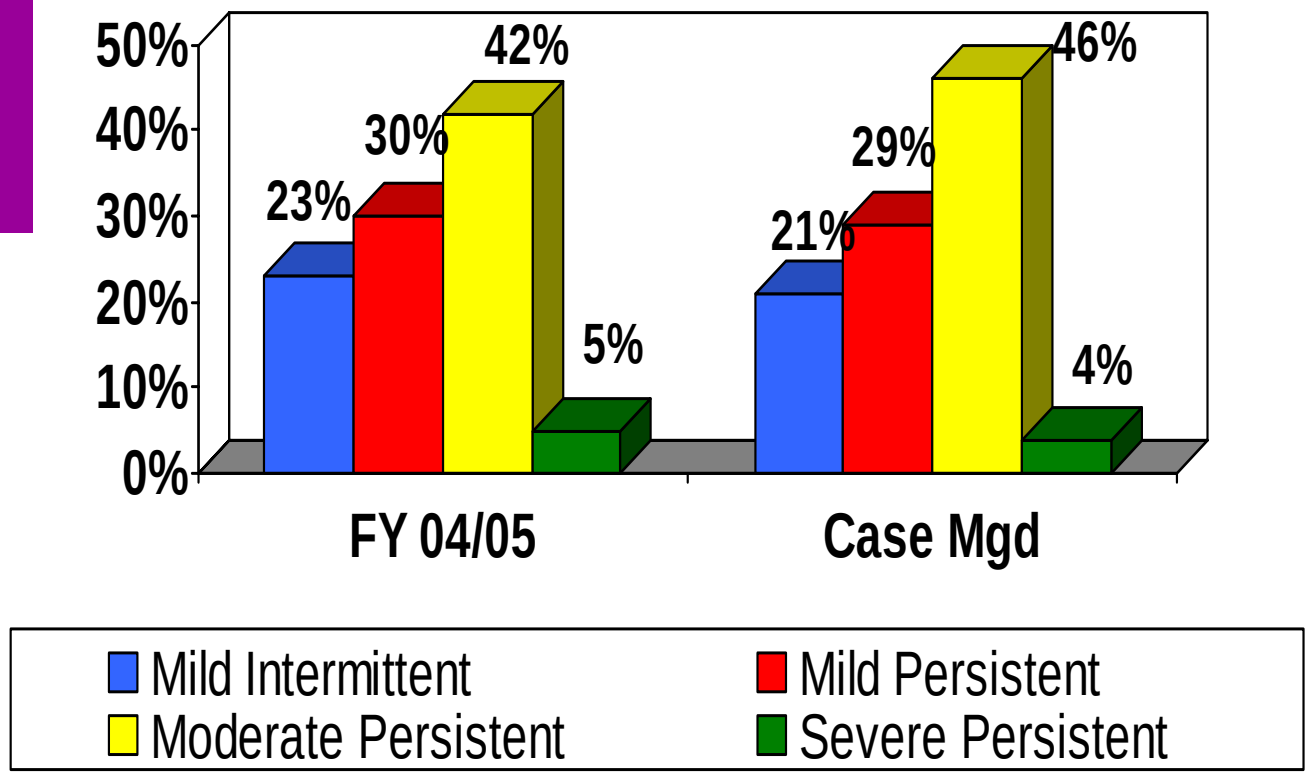
DATABASE CLASSIFICATIONS OF SEVERITY

FY 04/05: N=237 Case Mgd.: n=107



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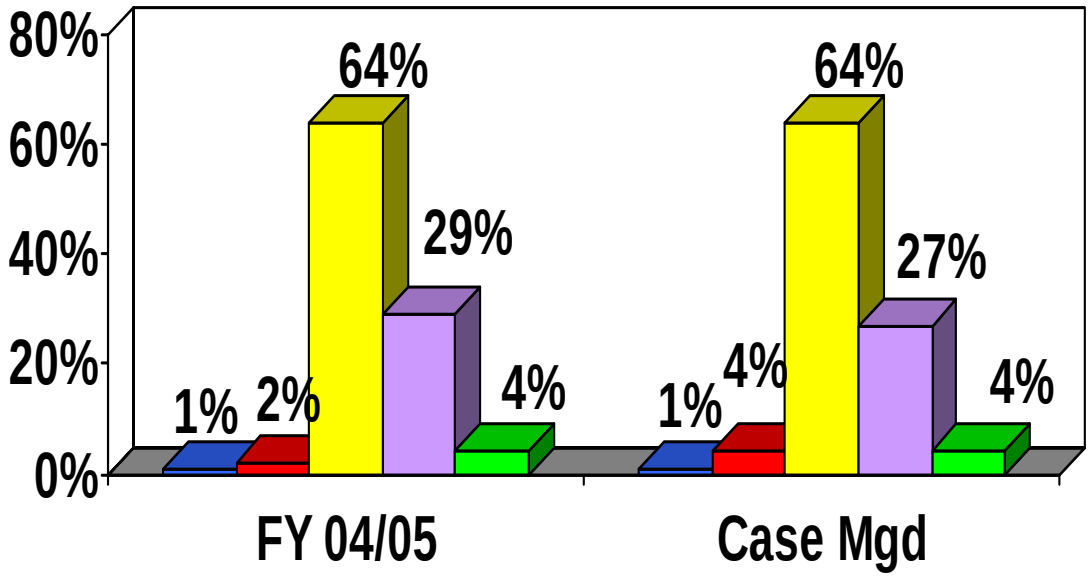
DATABASE REFERRAL PAYORS

FY 04/05: N=237 Case Mgd.: n=107



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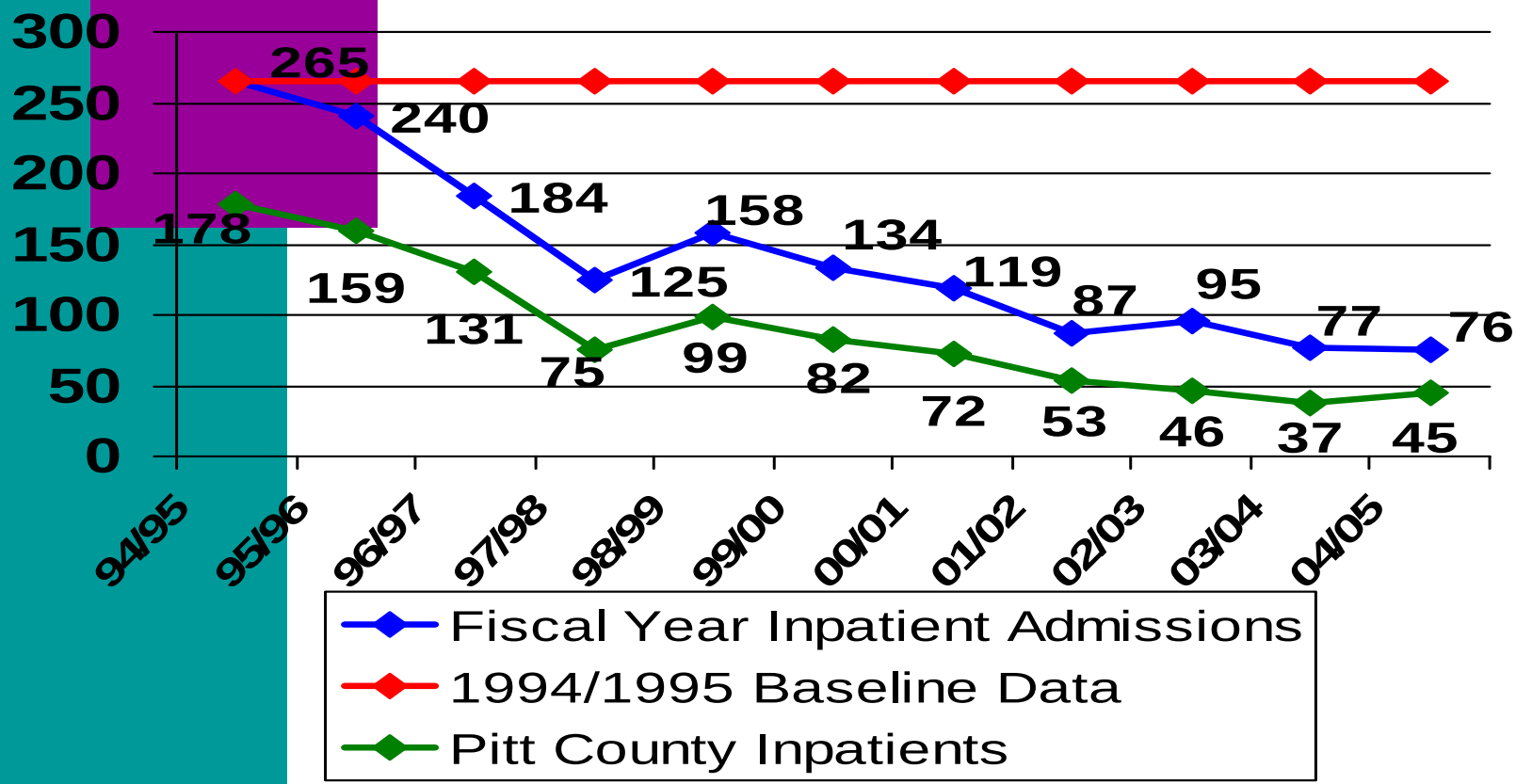
PEDIATRIC ASTHMA INPATIENTS

Fiscal Years 1994/1995 - 2004/2005



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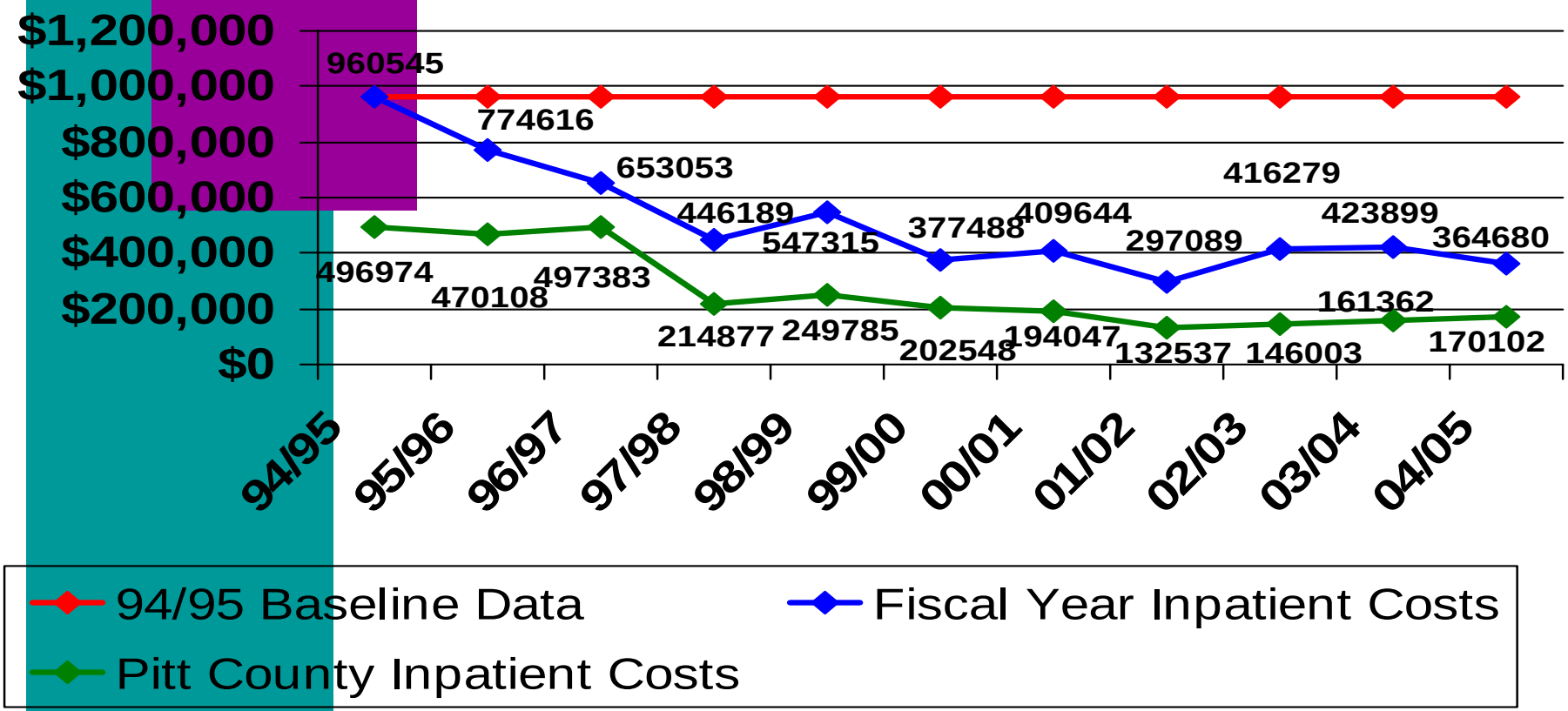
INPATIENT COST COMPARISON

Population N=76 Pitt County n=45



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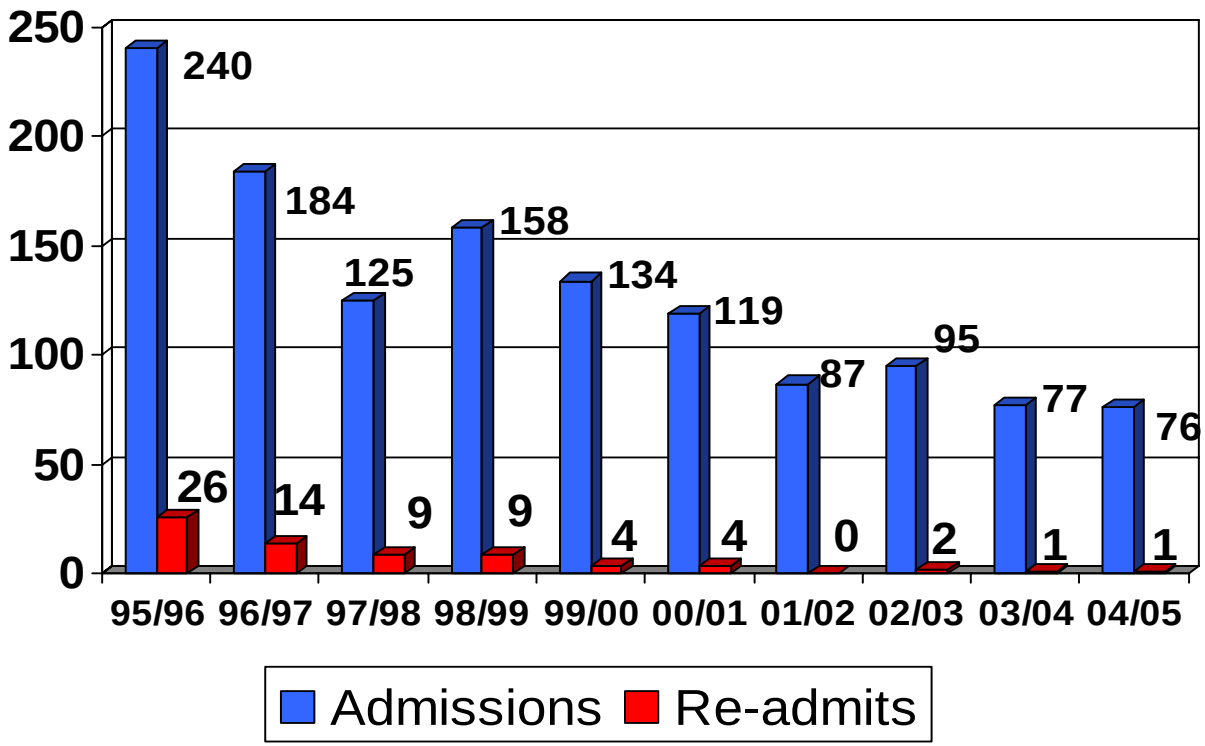
INPATIENT RECIDIVISM (based on 12 months)

95/96: 11% 96/97: 8% 97/98: 7% 98/99: 6% 99/00: 3%

00/01: 3% 01/02: 0% 02/03: 2% 03/04: 1% 04/05: 1%



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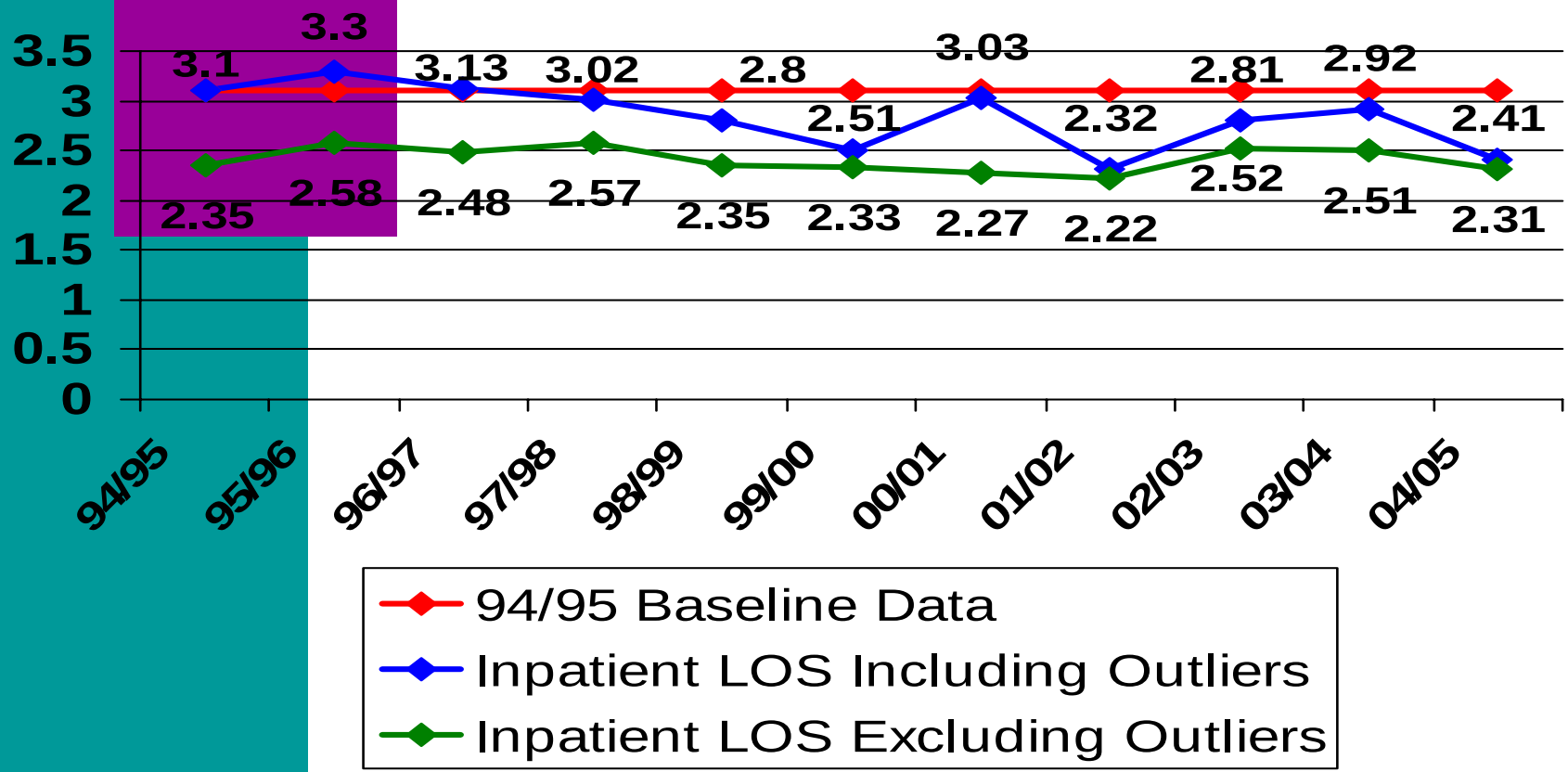
AVERAGE INPATIENT LENGTHS OF STAY

Population N=76 Pitt County n=45



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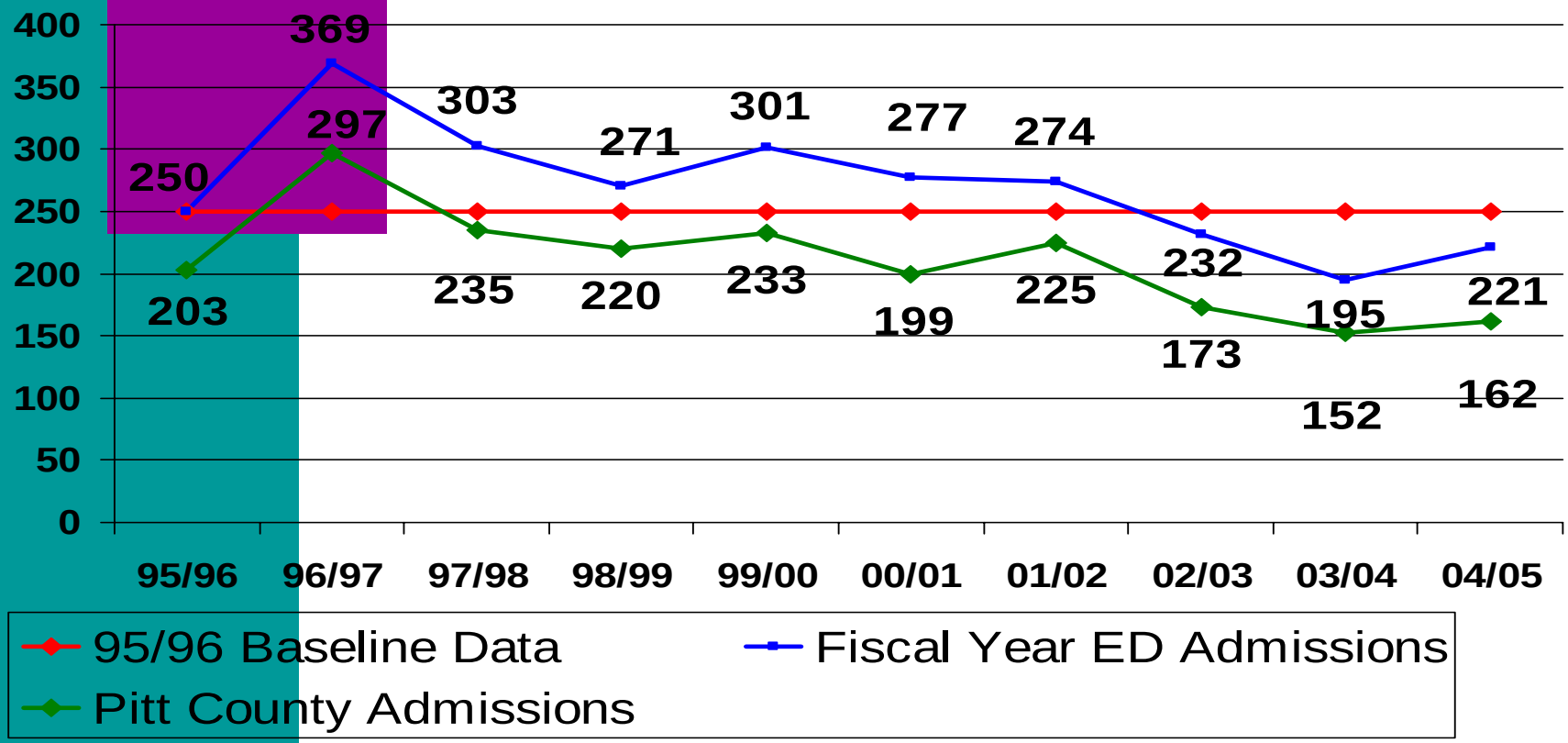
PEDIATRIC ASTHMA ED ADMISSIONS

Fiscal Years 1995/1996 - 2004/2005



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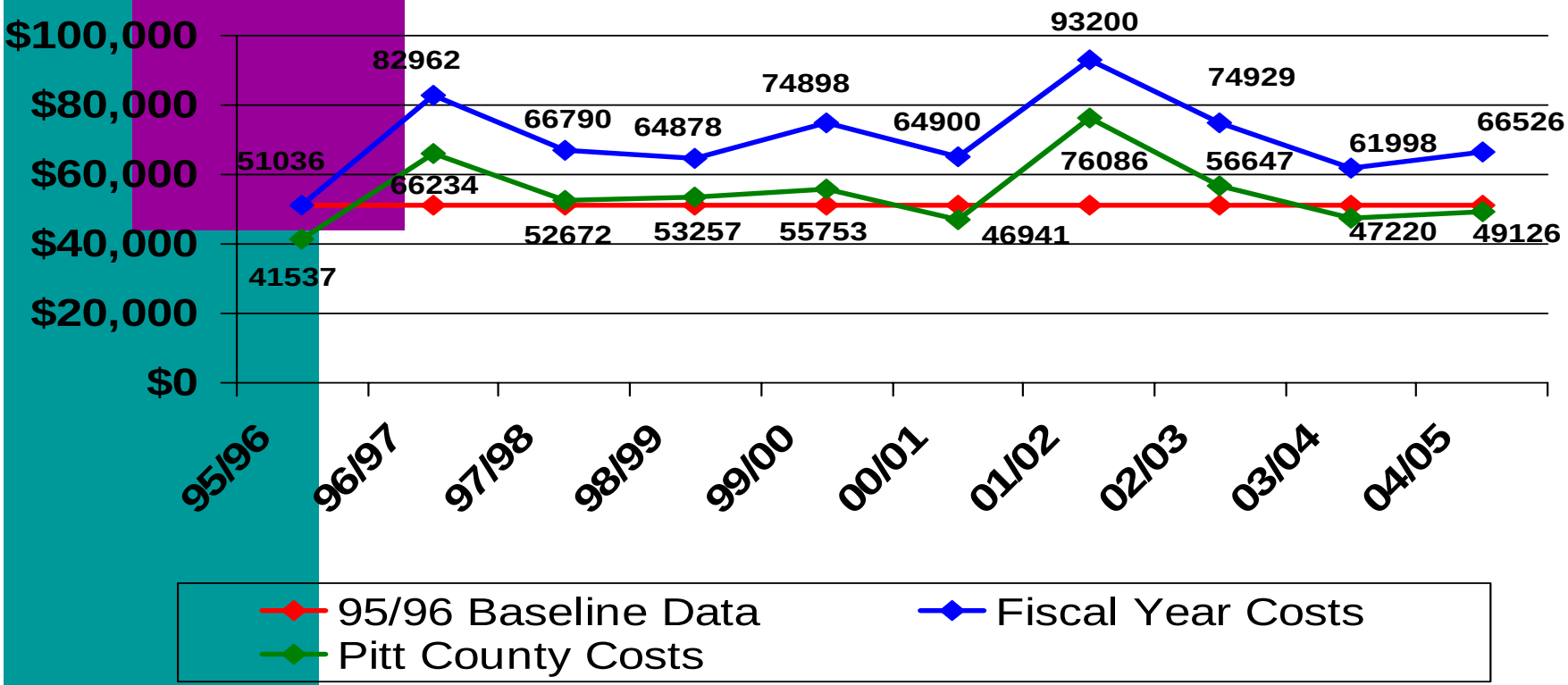
ED COST COMPARISON

1995/1996 - 2004/2005



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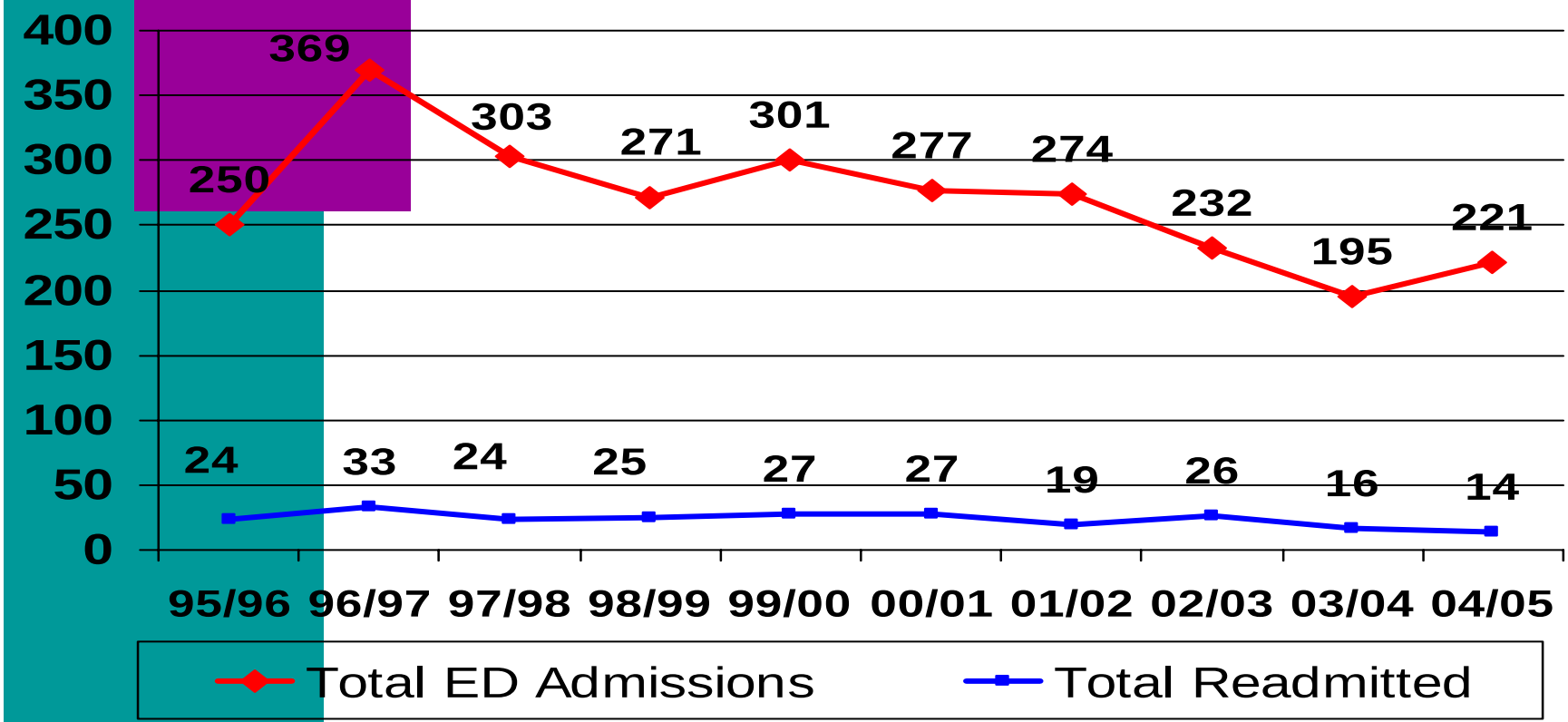
ED RECIDIVISM RATES (based on 12 months)

95/96:10% 96/97: 9% 97/98: 8% 98/99: 9% 99/00: 9%

00/01:10% 01/02: 7% 02/03:11% 03/04: 8% 04/05: 6%



Cost of Joshua’s annual hospitalizations . . .

$7,000

Cost of annual emergency department visits . . .

$705


Cost of parent’s lost productivity . . .
$1,080


Cost of effective disease management . . .
PRICELESS!